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10/757,413

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Yoshiyuki Akiyama

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EXAMINER

HEITBRINK, JILL LYNNE

ART UNIT

PAPER NUMBER

1743

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/757,413	<b>Applicant(s)</b> AKIYAMA ET AL.	
	<b>Examiner</b> JILL HEITBRINK	<b>Art Unit</b> 1743	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 9-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

1. In view of the Decision by the Board on May 17, 2011, PROSECUTION IS HEREBY REOPENED.

2. Applicant's amendment filed June 29, 2011 has been entered since they are pursuant to 37 CFR 41.50(b) and directed to the new grounds of rejection applied in the Board of Appeal's Decision.

***Claim Rejections - 35 USC § 112***

3. Applicant's amendments and arguments filed June 29, 2011, with respect to 35 USC 112 have been fully considered and are persuasive. The specification discloses a computer processor and a display. The examiner agrees that the level of skill in the art is such that one reasonably skilled in the art could make or use, without undue experimentation, the claimed determination device including the computing processor and the display to perform the claimed functions or algorithms as described in Applicant's arguments June 29, 2011, pages 11-13.

***Claim Rejections - 35 USC § 103***

4. In view of the new rejection under 112 in the Decision by the Board of Appeals on May 17, 2011, the Examiner's rejections under 103(a) were procedurally reversed, see page 5 of the Decision. The Board was unable to determine the propriety of the Examiner's 103(a) rejection as to do so would of necessity require speculation with regard to the metes and bounds of the claimed subject matter. The following art rejection are substantially equivalent to that previously applied but are directed to the amended claims filed June 29, 2011.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3, 5-7, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriwaki (Japanese Publication 7-205244) in view of Sekido (Japanese Publication 7-290548).

7. Moriwaki (Japanese Publication 7-205244) discloses an injection molding device for ejecting (injection into the mold cavity) a molding material, measuring the injecting pressure (abstract), forming an upper and lower limit waveform based on a reference waveform. The processor decides whether the measured result waveform is between the upper and lower limit waveforms or not, determines whether the product is defective, and outputs a malfunction signal. JP'244 does not specify that the injection pressure is from a hydraulic cylinder. Sekido JP'548 [0007] teaches a hydraulic cylinder. The use of hydraulic cylinders to inject material into a mold cavity and the measuring of the pressure of the hydraulic cylinder is conventional in the art of injection molding and would have been used in JP'244, see applicant's disclosure page 1 and 2. Applicant's disclosure states "on the related waveform monitoring apparatus described in JP-a-7-205244, a reference waveform is not shown when non-conformity is determined so that a nonconforming section and the degree of nonconformity as well as the difference and variation from a conformity case are not clear." JP'244 [0010] discloses a computer processor (12, 13) and a display (indicator 14 CRT or printer 17, a

plotter). JP'244 describes the indicator 14 and printer 17 reading out waveforms of the maximum waveform, minimum waveform, and existence of poor generating data.

Sekido JP'548 clearly shows the displaying of the measure injection pressure waveform compared to the upper and lower limit values. It would have been obvious to a person of ordinary skill in the art to show the measured pressure waveform in the display of JP'244 since the pressure is measured and the values are compared in JP'244. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line.

8. Additionally, as to the marking on the display, the examiner believes that the marking relates to the content of information being displayed rather than any functionality or methodology involved in causing the display itself, features best described as "non-functional descriptive material". Such descriptive material should not be given patentable weight absent a new and unobvious functional relationship between the descriptive material and the substrate (i.e. display). See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994); *In re Ngai*, 367 F.3d 1336, 1338, 70 USPQ 1862, 1864 (Fed. Cir. 2004). Therefore, the meaning attributed to the information displayed cannot be used to distinguish the claimed information displayed from prior art displays.

9. Claims 1, 3, 5-7, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morikawa (Japanese Publication 62-187009).

10. Morikawa JP'009 discloses a hydraulic cylinder and a sensor for measuring the pressure for ejecting (injection pressure) a molding material. The measured value is compared with upper and lower limits and if the value is outside the range an alarm is issued, see Figures 1-3 and abstract. JP'009 has a computing processor 2 which forms the measured value waveform based on the pressure data (abstract) and determine whether the pressure data exceeds a reference pressure waveform by a predetermined range (29, 30). Apply an error signal to the measured value waveform when the value is outside the permissible range setting device by the predetermine range as shown by the graphs of Figures 2 and 3. JP'009 has a display as shown by the CRT 33 in Fig. 1. It would have been obvious to a person of ordinary skill in the art to show the measured pressure waveform in the display of JP'009 since the pressure is measured and the values are compared in JP'009. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line.

11. Additionally, as to the marking on the display, the examiner believes that the marking relates to the content of information being displayed rather than any functionality or methodology involved in causing the display itself, features best described as "non-functional descriptive material". Such descriptive material should not be given patentable weight absent a new and unobvious functional relationship between the descriptive material and the substrate (i.e. display). See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994); *In re Ngai*, 367 F.3d 1336, 1338, 70

USPQ 1862, 1864 (Fed. Cir. 2004). Therefore, the meaning attributed to the information displayed cannot be used to distinguish the claimed information displayed from prior art displays.

12. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either [Moriwaki (Japanese Publication 7-205244) in view of Sekido (Japanese Publication 7-290548)] or Morikawa (Japanese Publication 62-187009) as applied to claims 1, 3, 5-7, 9 and 11-14 above, and further in view of Neko et al. (European Patent Application 418398).

13. Neko (col. 7, lines 21-31) discloses the determination device 114 stopping (terminating) an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times. It would have been obvious to a person of ordinary skill in the art to stop the operation of the injection molding device in either JP'244 or JP'009 in view of the teaching of Neko since the repeated exceeding measurement would indicate that the process needs correction.

14. Claims 1, 3-7 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neko et al. (European Patent Application 418398).

15. Neko discloses a waveform monitoring apparatus including a hydraulic cylinder (col. 12, line 14), incorporated in an injection molding device for ejecting a molding material into a mold. A sensor (col. 12, lines 16-19) generates pressure data of the hydraulic cylinder. A determination device (col. 10, line 51- col. 11, line 10 and col. 13,

lines 40-44), including a computing processor 114 and a display CRT screen which shows the result of the article conformity discrimination (col. 8, lines 3-6). The computing processor forms a measured value waveform based on the pressure data, and determines whether the pressure data exceeds a reference pressure waveform by a predetermined range and applies (col. 11, lines 11-39) a marking (value ER) to an excess portion of the measured value waveform determined by the determinant. A sorter (col. 11, line 55-col. 12, line 2) sorts a product formed from the molding material, wherein the determinant outputs a determination signal indicating whether the pressure data exceeds the reference pressure waveform by the predetermined range to the sorter. Neko (col. 7, lines 21-31) discloses the determination device stopping (terminating) an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times. In Neko (col. 5, lines 24-44), the computer processor sets an upper limit range and a lower limit range with respect to the reference pressure waveform as the predetermined range. A storage (RAM 108) stores the measured value waveform to which the marking is applied. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line and as shown in Figure 4 the relationship and distinction of the waveform lines is desired.



16. Additionally, as to the marking on the display, the examiner believes that the marking relates to the content of information being displayed rather than any functionality or methodology involved in causing the display itself, features best described as "non-functional descriptive material". Such descriptive material should not be given patentable weight absent a new and unobvious functional relationship between the descriptive material and the substrate (i.e. display). See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994); *In re Ngai*, 367 F.3d 1336, 1338, 70 USPQ 1862, 1864 (Fed. Cir. 2004). Therefore, the meaning attributed to the information displayed cannot be used to distinguish the claimed information displayed from prior art displays.

17. Claims 1, 3-7 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriwaki (Japanese Publication 2001-287254 taken together with Neko et al. (European Patent Application 418398).

18. Moriwaki JP'254 discloses a method and apparatus for monitoring a waveform, including generating pressure data of an injection molding device for ejecting a molding material into a mold and forming a measured value waveform (Fig. 4) based on the pressure data. Moriwaki JP'254 determines that the pressure data exceeds a reference pressure waveform by a predetermined range (abstract "control unit discriminates whether there is an abnormal value with respect to various waveform data". Then, a marking (outlying observation) is applied to an excess portion of the measured value waveform and displayed on the display including variances (paragraphs [0008]-[0013]. Moriwaki JP'254 discloses a computer processor (control unit 12) and a display 14 and

printer 16. Neko (col. 12, lines 11-15) teaches that the pressure data of an injection molding device can be from either an electrically operated injector or a hydraulically operated injector. It would have been obvious to a person of ordinary skill in the art to use the data collection, storing and monitoring of Moriwaki JP'254 in a hydraulically operated injection molding apparatus since the controlling and monitoring or abnormalities of the injection pressure is similarly necessary in screw controls for electro-mechanical injection units and hydraulic injection units.

19. The step of outputting a determination signal to a sorter which sorts a product formed from the molding material, wherein the determination signal indicates that whether the pressure data exceeds the reference pressure waveform by the predetermined range is taught by Neko (col. 11, line 55-col. 12, line 2). It would have been obvious to sort a product in Moriwaki JP'254 indicated by the abnormality in the waveform since the product has been determined to be abnormal in Moriwaki and thus would not have the same quality as the products produced without abnormal signals. Neko (col. 7, lines 21-31) discloses the determination device stopping (terminating) an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times. It would have been obvious to a person of ordinary skill in the art to stop the injecting operation when the measured pressure data waveform exceeds a reference pressure waveform maximum and minimum detected more than a predetermined number of times in Moriwaki JP'254 since this is a clear indication that correction of the problem is not occurring during the

operation of the injection molding. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line and as shown in Figure 4 of Moriwaki JP'254 and Figure 4 of Neko, the relationship and distinction of the waveform lines is desired.

20. Additionally, as to the marking on the display, the examiner believes that the marking relates to the content of information being displayed rather than any functionality or methodology involved in causing the display itself, features best described as "non-functional descriptive material". Such descriptive material should not be given patentable weight absent a new and unobvious functional relationship between the descriptive material and the substrate (i.e. display). See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994); *In re Ngai*, 367 F.3d 1336, 1338, 70 USPQ 1862, 1864 (Fed. Cir. 2004). Therefore, the meaning attributed to the information displayed cannot be used to distinguish the claimed information displayed from prior art displays.

21. Claims 1, 3, 5-7, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriwaki (Japanese Publication 7-205244) in view of Sekido (Japanese Publication 7-290548) taken together with Inden et al. (Pat. No. 4,905,165) in view of Colorblind Barrier Free.

22. Moriwaki (Japanese Publication 7-205244) discloses an injection molding device for ejecting (injection into the mold cavity) a molding material, measuring the injecting

pressure (abstract), forming an upper and lower limit waveform based on a reference waveform. The processor decides whether the measured result waveform is between the upper and lower limit waveforms or not, determines whether the product is defective, and outputs a malfunction signal. JP'244 does not specify that the injection pressure is from a hydraulic cylinder. Sekido JP'548 [0007] teaches a hydraulic cylinder. The use of hydraulic cylinders to inject material into a mold cavity and the measuring of the pressure of the hydraulic cylinder is conventional in the art of injection molding and would have been used in JP'244, see applicant's disclosure page 1 and 2. Applicant's disclosure states "on the related waveform monitoring apparatus described in JP-a-7-205244, a reference waveform is not shown when non-conformity is determined so that a nonconforming section and the degree of nonconformity as well as the difference and variation from a conformity case are not clear." JP'244 [0010] discloses a computer processor (12, 13) and a display (indicator 14 CRT or printer 17, a plotter). JP'244 describes the indicator 14 and printer 17 reading out waveforms of the maximum waveform, minimum waveform, and existence of poor generating data. Sekido JP'548 clearly shows the displaying of the measure injection pressure waveform compared to the upper and lower limit values. It would have been obvious to a person of ordinary skill in the art to show the measured pressure waveform in the display of JP'244 since the pressure is measured and the values are compared in JP'244. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly

within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line.

23. Inden et al. (Pat. No. 4,905,165) discloses the use of an abnormal condition display which displays a red line, a change in color of the trend format or a change in line into a dotted line when the measured value is outside the upper or lower value (col. 4, line 65 thru col. 5, line 43). Colorblind Barrier Free (page 13) teaches using lines of different shapes and thickness so as to accommodate people that are colored blind. It would have been obvious to a person of ordinary skill in the art to use a thicker marking for the portion of the measured value outside of the high and low limits in Inden so that a person who is colored blind can distinguish the change easily.

24. In view of the teaching of Inden, it would have been obvious to a person of ordinary skill in the art to provide a display indicating the measured pressure value in comparison with the upper and lower limits in JP'244 wherein the measured value outside of the upper and lower limit is marked by a change in the line color or shape. The use of such a display in JP'244 would have within the skill in the art of injection molding since the injection pressure signals are known to be an indication of the product quality.

25. Claims 1, 3, 5-7, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morikawa (Japanese Publication 62-187009) taken together with Inden et al. (Pat. No. 4,905,165) in view of Colorblind Barrier Free.

26. Morikawa JP'009 discloses a hydraulic cylinder and a sensor for measuring the pressure for ejecting (injection pressure) a molding material. The measured value is

compared with upper and lower limits and if the value is outside the range an alarm is issued, see Figures 1-3 and abstract. JP'009 has a computing processor 2 which forms the measured value waveform based on the pressure data (abstract) and determine whether the pressure data exceeds a reference pressure waveform by a predetermined range (29, 30). Apply an error signal to the measured value waveform when the value is outside the permissible range setting device by the predetermine range as shown by the graphs of Figures 2 and 3. JP'009 has a display as shown by the CRT 33 in Fig. 1. It would have been obvious to a person of ordinary skill in the art to show the measured pressure waveform in the display of JP'009 since the pressure is measured and the values are compared in JP'009. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line.

27. Inden et al. (Pat. No. 4,905,165) discloses the use of an abnormal condition display which displays a red line, a change in color of the trend format or a change in line into a dotted line when the measured value is outside the upper or lower value (col. 4, line 65 thru col. 5, line 43). Colorblind Barrier Free (page 13) teaches using lines of different shapes and thickness so as to accommodate people that are colored blind. It would have been obvious to a person of ordinary skill in the art to use a thicker marking for the portion of the measured value outside of the high and low limits in Inden so that a person who is colored blind can distinguish the change easily.

28. In view of the teaching of Inden, it would have been obvious to a person of ordinary skill in the art to provide a display indicating the measured pressure value in comparison with the upper and lower limits in JP'009 wherein the measured value outside of the upper and lower limit is marked by a change in the line color or shape. The use of such a display in JP'009 would have been within the skill in the art of injection molding since the injection pressure signals are known to be an indication of the product quality.

29. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either [Moriwaki (Japanese Publication 7-205244) or Morikawa (Japanese Publication 62-187009)] taken together with Inden et al. (Pat. No. 4,905,165) in view of Colorblind Barrier Free as applied to claims 1, 3, 5-7, 9 and 11-14 above, and further in view of Neko et al. (European Patent Application 418398).

30. Neko (col. 7, lines 21-31) discloses the determination device 114 stopping (terminating) an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times. It would have been obvious to a person of ordinary skill in the art to stop the operation of the injection molding device in either JP'244 or JP'009 in view of the teaching of Neko since the repeated exceeding measurement would indicate that the process needs correction.

31. Claims 1, 3-7 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neko et al. (European Patent Application 418398) taken together with Inden et al. (Pat. No. 4,905,165) in view of Colorblind Barrier Free.

32. Neko discloses a waveform monitoring apparatus including a hydraulic cylinder (col. 12, line 14), incorporated in an injection molding device for ejecting a molding material into a mold. A sensor (col. 12, lines 16-19) generates pressure data of the hydraulic cylinder. A determination device (col. 10, line 51- col. 11, line 10 and col. 13, lines 40-44), including a computing processor 114 and a display CRT screen which shows the result of the article conformity discrimination (col. 8, lines 3-6). The computing processor forms a measured value waveform based on the pressure data, and determines whether the pressure data exceeds a reference pressure waveform by a predetermined range and applies (col. 11, lines 11-39) a marking (value ER) to an excess portion of the measured value waveform determined by the determinant. A sorter (col. 11, line 55-col. 12, line 2) sorts a product formed from the molding material, wherein the determinant outputs a determination signal indicating whether the pressure data exceeds the reference pressure waveform by the predetermined range to the sorter. Neko (col. 7, lines 21-31) discloses the determination device stopping (terminating) an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times. In Neko (col. 5, lines 24-44), the computer processor sets an upper limit range and a lower limit range with respect to the reference pressure waveform as the predetermined



range. A storage (RAM 108) stores the measured value waveform to which the marking is applied. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line and as shown in Figure 4 the relationship and distinction of the waveform lines is desired.

33. Inden et al. (Pat. No. 4,905,165) discloses the use of an abnormal condition display which displays a red line, a change in color of the trend format or a change in line into a dotted line when the measured value is outside the upper or lower value (col. 4, line 65 thru col. 5, line 43). Colorblind Barrier Free (page 13) teaches using lines of different shapes and thickness so as to accommodate people that are colored blind. It would have been obvious to a person of ordinary skill in the art to use a thicker marking for the portion of the measured value outside of the high and low limits in Inden so that a person who is colored blind can distinguish the change easily.

34. In view of the teaching of Inden, it would have been obvious to a person of ordinary skill in the art to provide a display indicating the measured pressure value in comparison with the upper and lower limits in Neko wherein the measured value outside of the upper and lower limit is marked by a change in the line color or shape. The use of such a display in Neko would have within the skill in the art of injection molding since the injection pressure signals are known to be an indication of the product quality.

35. Claims 1, 3-7 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriwaki (Japanese Publication 2001-287254 taken together with

Neko et al. (European Patent Application 418398) in view of Inden et al. (Pat. No. 4,905,165) and Colorblind Barrier Free.

36. Moriwaki JP'254 discloses a method and apparatus for monitoring a waveform, including generating pressure data of an injection molding device for ejecting a molding material into a mold and forming a measured value waveform (Fig. 4) based on the pressure data. Moriwaki JP'254 determines that the pressure data exceeds a reference pressure waveform by a predetermined range (abstract "control unit discriminates whether there is an abnormal value with respect to various waveform data". Then, a marking (outlying observation) is applied to an excess portion of the measured value waveform and displayed on the display including variances (paragraphs [0008]-[0013]. Moriwaki JP'254 discloses a computer processor (control unit 12) and a display 14 and printer 16. Neko (col. 12, lines 11-15) teaches that the pressure data of an injection molding device can be from either an electrically operated injector or a hydraulically operated injector. It would have been obvious to a person of ordinary skill in the art to use the data collection, storing and monitoring of Moriwaki JP'254 in a hydraulically operated injection molding apparatus since the controlling and monitoring or abnormalities of the injection pressure is similarly necessary in screw controls for electro-mechanical injection units and hydraulic injection units.

37. The step of outputting a determination signal to a sorter which sorts a product formed from the molding material, wherein the determination signal indicates that whether the pressure data exceeds the reference pressure waveform by the predetermined range is taught by Neko (col. 11, line 55-col. 12, line 2). It would have

been obvious to sort a product in Moriwaki JP'254 indicated by the abnormality in the waveform since the product has been determined to be abnormal in Moriwaki and thus would not have the same quality as the products produced without abnormal signals. Neko (col. 7, lines 21-31) discloses the determination device stopping (terminating) an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times. It would have been obvious to a person of ordinary skill in the art to stop the injecting operation when the measured pressure data waveform exceeds a reference pressure waveform maximum and minimum detected more than a predetermined number of times in Moriwaki JP'254 since this is a clear indication that correction of the problem is not occurring during the operation of the injection molding. The marking at the excess portion of the measured value waveform being thicker than other portions would have been an obvious display since such display functions are clearly within the skill in the art as shown by applicant's lack of teaching how to provide such a thick line and as shown in Figure 4 of Moriwaki JP'254 and Figure 4 of Neko, the relationship and distinction of the waveform lines is desired.

38. Inden et al. (Pat. No. 4,905,165) discloses the use of an abnormal condition display which displays a red line, a change in color of the trend format or a change in line into a dotted line when the measured value is outside the upper or lower value (col. 4, line 65 thru col. 5, line 43). Colorblind Barrier Free (page 13) teaches using lines of different shapes and thickness so as to accommodate people that are colored blind. It

would have been obvious to a person of ordinary skill in the art to use a thicker marking for the portion of the measured value outside of the high and low limits in Inden so that a person who is colored blind can distinguish the change easily.

39. In view of the teaching of Inden, it would have been obvious to a person of ordinary skill in the art to provide a display indicating the measured pressure value in comparison with the upper and lower limits in Moriwaki JP'254 wherein the measured value outside of the upper and lower limit is marked by a change in the line color or shape. The use of such a display in JP'009 would have within the skill in the art of injection molding since the injection pressure signals are known to be an indication of the product quality.

40.

41. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

42.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JILL HEITBRINK whose telephone number is (571)272-1199. The examiner can normally be reached on Monday-Friday 9 am -2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571) 272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner, Art Unit 1743

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Art Unit 1743

jlh